

AMENDMENTS TO THE CLAIMS

1. (Currently amended) An image evaluation chart, comprising:
a resolution inspection area including:
a center point located at a center part of the chart;
a regular-squared outer line located at outside of the center point; [[and]]
a plurality of position check points being symmetrically arranged in a diagonal direction to the center point; and
a plurality of resolution measurement lines symmetrically arranged at right and left sections and upper and lower sections on the basis of the center point,
wherein each of the plurality of resolution measurement lines is classified into a plurality of black-colored lines and a plurality of white-colored lines, the black-colored lines and the white-colored lines are alternately arranged while being spaced apart from each other at regular intervals, and the longer a distance from the center point to the regular-squared outer line, the larger a width of the resolution measurement line.
2. (Original) The image evaluation chart as set forth in claim 1, wherein:
although the resolution measurement line is vertically or horizontally cut on the basis of any one of its own points, a width ratio of the black-colored line is the same as that of the white-colored line.
3. (Original) The image evaluation chart as set forth in claim 1, wherein the chart is manufactured on the basis of an LPM (Line Per Millimeter) unit serving as a DPI (Dot Per Inch) standard of a lens.
4. (Original) The image evaluation chart as set forth in claim 1, wherein:

one end of the resolution measurement line is close to the center point, the other end reaches the outer line to create the largest line width, and the largest line width is more than two times larger than the nearest line width close to the center point.

5. (Original) The image evaluation chart as set forth in claim 1, wherein:

five black-colored lines are contained in the right and left sections and the upper and lower sections such that 20 black-colored lines are contained in the resolution inspection area, and four white-colored lines are contained in the right and left sections and the upper and lower sections such that 16 white-colored lines are contained in the resolution inspection area.

6. (Original) The image evaluation chart as set forth in claim 1, wherein:

one resolution inspection area is positioned at the center of the chart, and more than one resolution inspection area is positioned in the vicinity of the resolution inspection area positioned at the center of the chart.

7. (Original) The image evaluation chart as set forth in claim 6, wherein the image evaluation chart has the same horizontal and vertical ratios as those of a pixel of an image sensor of video equipment.

8. (Original) The image evaluation chart as set forth in claim 1, further comprising:

a plurality of balance measurement lines symmetrically displayed at individual positions corresponding to individual resolution measurement lines at the outside of the resolution inspection area, while being spaced apart from the outer line by a predetermined distance,

wherein each of the balance measurement lines is classified into a plurality of black-colored lines and a plurality of white-colored lines, and the black-colored lines and the white-

colored lines indicated by straight lines each having a predetermined length are alternately arranged while being spaced apart from each other at regular intervals.

9. (Original) The image evaluation chart as set forth in claim 8, wherein the balance measurement lines each have the same width as the largest line width of the resolution measurement line.

10. (Original) The image evaluation chart as set forth in claim 8, further comprising:
a plurality of position check points symmetrically arranged among the balance measurement lines in a diagonal direction to the center point.

11. (Original) An image evaluation chart, comprising:
a resolution inspection area including:
a center point located at a center part of the chart;
a regular-squared outer line for allowing the center point to be located at the center of the chart; and

a plurality of resolution measurement lines symmetrically arranged at right and left sections and upper and lower sections on the basis of the center point,

wherein each of the plurality of resolution measurement lines is classified into a plurality of black-colored lines and a plurality of white-colored lines, the black-colored lines and the white-colored lines are alternately arranged while being spaced apart from each other at regular intervals, the longer a distance from the center point to the regular-squared outer line, the larger a width of the resolution measurement line, and the number of the resolution inspection areas is set to 9, that is, one resolution inspection area is positioned at the center of the chart, the right and left sections each contain one resolution inspection area, the upper and lower sections

each contain one resolution inspection area, and four diagonal sections each contain one resolution inspection area;

a plurality of balance measurement lines displayed at individual positions corresponding to individual resolution measurement lines at the outside of the resolution inspection area located at the center of the chart, wherein a plurality of black-colored lines and a plurality of white-colored lines are alternately arranged while being spaced apart from each other by a predetermined distance; and

a plurality of position check points arranged among the balance measurement lines in a diagonal direction to the center point.

12. (Original) The image evaluation chart as set forth in claim 11, wherein:

although the resolution measurement line is vertically or horizontally cut on the basis of any one of its own points, a width ratio of the black-colored line is the same as that of the white-colored line.

13. (Original) The image evaluation chart as set forth in claim 11, wherein:

one end of the resolution measurement line is close to the center point, the other end reaches the outer line to create the largest line width, and the largest line width is more than two times larger than the nearest line width close to the center point.

14. (Original) The image evaluation chart as set forth in claim 11, wherein:

five black-colored lines are contained in the right and left sections and the upper and lower sections such that 20 black-colored lines are contained in the resolution inspection area, and four white-colored lines are contained in the right and left sections and the upper and lower sections such that 16 white-colored lines are contained in the resolution inspection area.

15. (Original) A method for testing performance of video equipment, comprising the steps of:

a) preparing a chart including a plurality of balance measurement lines and a resolution inspection area which is composed of a center point located at a center part of the chart, a regular-squared outer line located at outside of the center point, and a plurality of resolution measurement lines symmetrically arranged at right and left sections and upper and lower sections on the basis of the center point,

wherein each of the resolution measurement lines is classified into a plurality of black-colored lines and a plurality of white-colored lines, the black-colored lines and the white-colored lines are alternately arranged while being spaced apart from each other at regular intervals, the longer a distance from the center point to the regular-squared outer line, the larger a width of the resolution measurement line, a first resolution inspection area is positioned at the center of the chart and more than one resolution inspection area is located in the vicinity of the first resolution inspection area,

wherein the balance measurement lines are displayed at individual positions corresponding to individual resolution measurement lines at the outside of the resolution inspection area located at the center of the chart, and are classified into a plurality of black-colored lines and a plurality of white-colored lines that are alternately arranged while being 20 spaced apart from each other by a predetermined distance;

b) properly installing a lighting device to provide the chart with uniform illuminance;

c) properly installing video equipment to allow the center of the chart to be aligned with the center of an image sensor of the video equipment;

d) capturing an image of the chart; and

e) comparing a reference value for the chart with a real value created by capturing the chart image, and testing a variety of performances such as resolution, balance, view angle, distortion, and focus.

16. (Original) The method as set forth in claim 15, wherein a prescribed equation for calculating a resolving power to determine the resolution and the balance is represented by the following Equation 1:

[Equation 1]

$$\text{Ref} = \text{Wa} - \text{Ba}$$

$$\text{Wa} = \sum_{i=1}^{16} \text{Wi} / 16, \text{Ba} = \sum_{i=1}^{20} \text{Bi} / 20$$

where "Ref" is a resolving power, "Wa" is an overall mean value of the white-colored lines contained in the resolution measurement lines, and "Ba" is an overall mean value of the black-colored lines.

17. (Original) The method as set forth in claim 16, further comprising the steps of:
selecting a clear portion from among the resolution measurement lines of the captured chart;

calculating a resolving power of the clear portion using the equation; and

setting the calculated resolving power to a resolution value.

18. (Original) The method as set forth in claim 16, wherein the step for determining the balance includes the steps of:

analyzing the balance measurement lines to acquire individual values of the white-colored lines and the black-colored lines, and applying the acquired values to the Equation 1 to acquire a reference resolving power;

selecting portions overlapped with the outer line from among the resolution measurement lines arranged at the center of the chart and its nearby areas, analyzing the selected portions to acquire individual values of the white-colored lines and the black-colored lines, and applying the acquired values to the Equation 1 to acquire a resolving power of individual positions; and

comparing the reference resolving power with a resolving power of individual positions, and determining performance of balance on the basis of the result of the comparison.

19. (Original) The method as set forth in claim 15, wherein the view angle is determined using the following Equation 2:

[Equation 2]

$$\text{view angle} = \tan^{-1} \{ (\text{dis_d}/2) / D \} \times 2$$

$$\text{dis_d} = \text{sqrt} (\text{dis_x}^2 + \text{dis_y}^2)$$

where "dis_d" is a distance of a diagonal line actually captured, "D" is a distance between the chart and the video equipment, "dis_x" is a distance of a really-captured "X", "dis_y" is a distance of really-captured "Y", and "sqrt" means a square root.

20. (Original) The method as set forth in claim 15, wherein the distortion is determined using the following Equation 3:

[Equation 3]

Total distortion = {X-axis distortion + Y-axis distortion}/2

X-axis distortion = { (Xc-Xa) + (Xi-Xg) } / {Xf-Xd} x 2}

Y-axis distortion = { (Yg-Ya) + (Yi-Yc) } / {Yh-Yb} x 2}

where "Xc-Xa" indicates a difference between X coordinates of center points of both upper ends of the chart, "Xi-Xg" indicates a difference between X coordinates of center points of both lower ends of the chart, "Xf-Xd" indicates a difference between X coordinates of center points of both center ends of the chart, "Yg-Ya" indicates a difference between Y coordinates of center points of upper and lower left-sided ends of the chart, "Yi-Yc" indicates a difference between Y coordinates of center points of upper and lower right-sided ends of the chart, and "Yh-Yb" indicates a difference between Y coordinates of center points of upper and lower center ends of the chart.

21. (Original) The method as set forth in claim 15, wherein the step for determining the focus includes the steps of:

calculating a maximum average value of sharpness created by a correct focus using to the chart; and

setting the focus to the calculated maximum average value to provide the best focus.